Radiology. 2016 Nov;281(2):507-515. Epub 2016 Jun 23.

Prevalence, Clinical Management, and Natural Course of Incidental Findings on Brain MR Images: The Population-based Rotterdam Scan Study.

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Abstract

Purpose To present an updated prevalence estimate for incidental findings on brain magnetic resonance (MR) images and provide information on clinical relevance, including natural course, over a period of up to 9 years. Materials and Methods This study was approved by the institutional review board and all participants gave informed consent. In a prospective population-based setting, structural brain MR imaging was performed in 5800 participants (mean age, 64.9 years; 3194 women [55.1%]). Trained reviewers recorded abnormalities, which were subsequently evaluated by neuroradiologists. The prevalence with 95% confidence interval (CI) of incidental findings was determined, and clinical management of findings that required the attention of a medical specialist was followed. Follow-up imaging in the study context provided information on the natural course of findings that were not referred. Results In 549 of 5800 participants (9.5% [95% CI: 8.7%, 10.3%]), incidental findings were found, of which meningiomas (143 of 5800; 2.5% [95% CI: 2.1%, 2.9%]) and cerebral aneurysms (134 of 5800; 2.3% [95% CI: 2.0%, 2.7%]) were most common. A total of 188 participants were referred to medical specialists for incidental findings (3.2% [95% CI: 2.8%, 3.7%]). Of these, 144 (76.6% [95% CI: 70.1%, 82.1%]) either underwent a wait-and-see policy or were discharged after the initial clinical visit. The majority of meningiomas and virtually all aneurysms not referred or referred but untreated remained stable in size during follow-up. Conclusion Incidental findings at brain MR imaging that necessitate further diagnostic evaluation occur in over 3% of the general middle-aged and elderly population, but are mostly without direct clinical consequences. © RSNA, 2016.

PMID: 27337027 DOI: 10.1148/radiol.2016160218

[Indexed for MEDLINE]